

(9) CLAIMS

1. A printing system comprising:  
rewritable media having a bistable, electrochromic, colorant layer susceptible to  
localized electrical fields; and  
5 associated with said media, an electrode subsystem producing said localized  
electrical fields.
2. The system as set forth in claim 1 further comprising:  
a transport for moving a sheet of said media passed said electrode subsystem.
3. The system as set forth in claim 2, the transport further comprising:  
10 at least one media position sensor.
4. The system as set forth in claim 1 further comprising:  
means for downloading, storing, sequencing, and printing text and images.
5. The system as set forth in claim 1 configured as a portable hard copy printing  
apparatus.
- 15 6. The system as set forth in claim 1 in a portable computer appliance.

7. The system as set forth in claim 1 in a telecommunications device.

8. The system as set forth in claim 1 wherein said electrode subsystem substantially stationary and configured to print on a sheet of said media as said media is translated passed said electrode subsystem.

5 9. The system as set forth in claim 1 wherein said electrochromic colorant layer further comprises:

at least one layer of a molecular colorant coating wherein molecules of the coating are at least bichromal and subjectable to bistable switching between color states under influence of said localized electric field.

10 10. The system as set forth in claim 9 comprising:

said molecules exhibit an electric field induced band gap change, occurring via a mechanism selected from a group including (1) molecular conformation change or an isomerization, (2) change of extended conjugation via chemical bonding change, and (3) molecular folding or stretching.

15 11. The system as set forth in claim 2, said transport further comprising:

electrical generators connected to said electrode subsystem for producing said localized electrical fields.

12. The system as set forth in claim 9, the molecular colorant coating further comprising:

a mosaic pixel pattern of primary color pixels such that full color printing is produced by said electrode subsystem on said media.

5 <sup>13</sup> 14. The system as set forth in claim 1, said electrode subsystem further comprising:

means to field address temporally and spatially.

10 <sup>14</sup> 15. A hard copy printing method comprising:  
selectively providing localized electric fields, each of said fields conforming to a predetermined picture element size;  
transporting a printing medium across said fields such that a bistable electrochromic colorant layer of said medium is subjected to said electric fields; and  
manipulating said electric fields to produce printed data onto said electrochromic colorant layer.

15 <sup>15</sup> 16. The method as set forth in claim 15 wherein a first polarity of said localized electric fields prints a picture element.

<sup>16</sup> 17. The method as set forth in claim 16 wherein a reverse polarity of said first polarity of said localized electric fields erases a picture element.

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18. The method as set forth in claim 15 used in a portable hard copy apparatus.

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19. The method as set forth in claim 15 used in a portable computer appliance.

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20. The method as set forth in claim 15 used in a telecommunications device.

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21. The method as set forth in claim 15 wherein said electrochromic colorant layer  
5 is at least one layer of a molecular colorant coating wherein molecules of the coating  
are at least bichromal and subjectable to bistable switching between color states  
under influence of said localized electric field.

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22. The method as set forth in claim 21 wherein said molecules exhibit an electric  
field induced band gap change, occurring via a mechanism selected from a group  
including (1) molecular conformation change or an isomerization, (2) change of  
extended conjugation via chemical bonding change, and (3) molecular folding or  
stretching.

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23. A method of doing business, the method comprising:  
15 providing a printing apparatus including an electrode subsystem for providing  
selectively localized electric fields corresponding to picture elements printable from  
digital data;

providing a rewritable media instrument susceptible to said fields wherein said

media instrument is associated with a service and use fees associated therewith; and printing and reprinting legible information on said media instrument associated with said use fee and a current balance with said stationary printing apparatus whenever said media instrument is used in association with said printing apparatus.

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5 24. The method as set forth in claim 23 wherein a first polarity of said localized electric fields prints a picture element.

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10 25. The method as set forth in claim 24 wherein a reverse polarity of said first polarity of said localized electric fields erases a picture element.

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15 26. The method as set forth in claim 23 wherein said business is conducted using a portable hard copy apparatus.

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27. The method as set forth in claim 23 wherein said business is conducted using a portable computer appliance.

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28. The method as set forth in claim 23 wherein said business is conducted using in a telecommunications device.

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15 29. The method as set forth in claim 23 wherein said electrochromic colorant layer is at least one layer of a molecular colorant coating wherein molecules of the coating

are at least bichromal and subjectable to bistable switching between color states under influence of said localized electric field.

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30. The method as set forth in claim 29 wherein said molecules exhibit an electric field induced band gap change, occurring via a mechanism selected from a group including (1) molecular conformation change or an isomerization, (2) change of extended conjugation via chemical bonding change, and (3) molecular folding or stretching.

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